II. Remarks

Claims 1, 9, 10, 20, 25, 30, 32 and 36 have been amended to define clearly the Applicants' invention. New claims 39 to 54 have been added to define further aspects of the Applicants' invention. Claims 1 to 5, 7 to 13, 20 to 23, 25, 27 to 30 and 32 to 54 are now pending in the present application and are believed to distinguish patentably over the prior art.

In the Official Action, the Examiner has rejected claims 9, 20, 30 and 32 to 35 under 35 U.S.C. §112, first paragraph as failing to comply with the written description requirement. The Examiner is alleging that the subject matter of these claims was not described in such a manner that would convey that the inventors had possession of claimed limitations at the time of filing. Claims 9, 20, 30 and 32 have been amended to overcome this objection. Accordingly, Applicants respectfully request the Examiner to remove this objection.

The Examiner has rejected claims 30 and 32 to 35 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the Applicants regard as the invention. Claims 30 and 32 have been amended to overcome this objection by removing the term "self-updating". Accordingly, Applicants respectfully request the Examiner to remove this objection.

With respect to prior art, the Examiner has rejected claims 1 to 5, 7 to 13, 20 to 23, 30, 32 to 34, 36 and 37 under 35 U.S.C. §103(a) as being unpatentable over European Patent Application No. 0777394 to Belpaire ("Belpaire") in view of U.S. Patent No. 6,157,950 to Krishnan ("Krishnan"). The Examiner is alleging that the Applicants' invention as defined by these claims would be obvious to one of ordinary skill in the art in view of the teachings of these references. Claims 25, 27, 28, 35 and 38 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Belpaire in view of U.S. Patent No. 5,970,488 to Crowe et al. ("Crowe"). The Examiner is alleging that the Applicants' invention as defined by these claims would be obvious to one of ordinary skill in the art in view of the teachings of these references. Claim 29 has been rejected under 35 U.S.C. §103(a) as being unpatentable over Belpaire in view of Crowe and Krishnan. The Examiner is alleging that the Applicants'

invention as defined by these claims would be obvious to one of ordinary skill in the art in view of the teachings of these references. Applicants respectfully submit that the Examiner's objections to the claims in view of the cited references are not appropriate for the reasons set forth below.

According to one aspect of the Applicants' invention as defined by independent claim 1, Applicants provide a communication system including at least two communications networks over which communications between physical devices connected to the communication networks are to be carried. The communication networks implement different protocols for messaging. A communication server acts between the communication networks and through which messages transmitted between the communication networks pass. The communication server includes a knowledge base storing information identifying each physical device registered in the communication system, information identifying registered connections available in the communication system including protocol conversion information for each registered connection where necessary and information identifying the status of each actual connection between physical devices in the communication system. The communication server accesses the knowledge based upon receipt of a message and searches the knowledge base for appropriate protocol conversion information. During the searching, the communication server initially uses a header of the message as a key to searching the knowledge base for the protocol conversion information. If the search fails, the communication server uses a body of the message as the key to searching the knowledge base for the protocol conversion information. The communication server converts the protocol of the received message to a protocol compatible with the communication network to which the message is being sent using the determined protocol conversion information.
By registering physical devices and registered connections including related protocol conversion information in the knowledge base and recording the status of actual connection in the communications system, Applicants' communication system allows messages to be intelligently converted and routed between physical devices for any type of physical device and over any type of network.

In contrast, Belpaire discloses a mail service gateway coupled between a network that supports electronic mail and a network for mobile communications where a

short message service is provided. The mail service gateway decomposes each incoming electronic message and embeds successive parts thereof in successive short messages which are then transmitted through the mobile communication network toward the destination mobile terminal. When a message is received by the mail service gateway, filtering means subtracts overhead from the message and outputs a naked message. The destination for the message stripped by the filtering means is fed to destination translation means. The naked message is processed to detect the presence of voluminous data objects and such data objects are replaced with short codes to form output data. The output data is decomposed into data blocks which can be encapsulated one by one in a short message. Extension data is added to each block prior to transmission to the destination mobile terminal.

Krishnan discloses an apparatus for coupling a single or small network of computers to a wide area network that enables devices to share one or more IP addresses.

Crowe discloses a distributed database system including a plurality of nodes each running at least one application and storing a database. Each database includes a plurality of tables storing records. Each table is owned by only one application and can only be modified by that application. Each node schedules running of applications so that only one application reads from and writes to the database at a time, distributes updates to the database and other databases and updates the database in accordance with received updates.

Applicants respectfully submit that none of the references cited by the Examiner either alone or in combination teaches or suggests a knowledge base storing information identifying each physical device registered in the communication systems, information identifying registered connections available in the communication system including protocol conversion information for each registered connection where necessary and information identifying the status of each actual connection between physical devices in the communication system.

Belpaire simply teaches a translation table memory that stores a destination identifier in the mobile communication network for each destination identifier in the Internet network. Krishnan maps same-address types to allow computers to share IP addresses and has nothing to do with protocol conversion. Crowe distributes applications over a network and allows the applications to update local and remote databases.

Accordingly, Applicants respectfully submit that independent claim 1 distinguishes patentably over the cited references either alone or in combination and should be allowed. As claims 2 to 5, 7 to 9, 20 and 39 to 41 are dependent either directly or indirectly on independent claim 1, which is deemed allowable, Applicants respectfully submit that these claims should also be allowed.

Independent claim 10 defines a communication server and recites subject matter similar to that recited in independent claim 1. Accordingly, Applicants respectfully submit that independent claim 10 distinguishes patentably over the cited references and should be allowed. As claims 11 to 13, 21 to 23 and 42 to 44 are dependent either directly or indirectly on independent claim 10, which is deemed allowable, Applicants respectfully submit that these claims should also be allowed.

Independent claim 25 defines a communication server acting as a gateway for the transmission of messages between two virtual devices communicating with networks implementing different protocol. The communication server includes a knowledge base comprising a registry identifying each physical device registered to deliver messages for transmission between the virtual devices and through the gateway, a logical table identifying each registered connection available between physical devices and protocol conversion information for each registered connection where necessary to convert messages of one protocol to a different protocol and a dynamic database identifying the current status of each actual connection between physical devices. A virtual gateway accesses the knowledge base for protocol conversion information upon receipt of a message to be transmitted between the virtual devices and converts the protocol of the message to a protocol compatible with the network to which the message is being sent. The virtual gateway updates the protocol information in the knowledge base based on message traffic therethrough.

Applicants respectfully submit that this claim distinguishes patentably over the cited prior art for the same reasons set forth above and should be allowed. As claims 27 to 29, 45 and 46 are dependent either directly or indirectly on independent claim 25, which is deemed allowable, Applicants respectfully submit that these claims should also be allowed.

Independent claim 30 defines a communication server and recites subject matter similar to that recited in independent claim 25. Accordingly, Applicants respectfully

submit that this claim should be allowed. As claims 33 to 35, 47 and 48 are dependent either directly or indirectly on independent claim 32, which is deemed allowable, Applicants respectfully submit that these claims should also be allowed.

Independent claims 32 and 36 defines a communication system and server and recite subject matter similar to that recited in independent claim 25. Accordingly, Applicants respectfully submit that these claims should be allowed. As claims 33 to 35 and 49 to 51 are dependent either directly or indirectly on independent claim 32, which is deemed allowable, Applicants respectfully submit that these claims should also be allowed. As claims 37, 38 and 52 to 54 are dependent either directly or indirectly on independent claim 36, which is deemed allowable, Applicants respectfully submit that these claims should also be allowed.

In view of the above, it is believed the application is in order for allowance and action to that end is respectfully requested.

Respectfully submitted,

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August 12, 2004
Date